

IN THE CLAIMS:

Claim 1 (currently amended) A fully vulcanized thermoplastic elastomer, comprising a rubber phase and a plastic matrix, wherein an average particle size of the rubber phase of said fully vulcanized thermoplastic elastomer is ~~0.05 μ —0.5 μ~~ 0.02 μ ~ 1 μ , wherein a shape of the rubber phase of said fully vulcanized thermoplastic elastomer is spheroidic, wherein the weight ratio of the rubber phase to the plastic matrix is 30:70 to 75:25, and wherein the rubber phase is provided by a fully vulcanized powdery rubber prepared by vulcanizing a corresponding rubber latex with irradiation ~~wherein the rubber phase of said fully vulcanized thermoplastic elastomer comprises at least one rubber selected from the group consisting of natural rubber, styrene-butadiene rubber, carboxylated styrene-butadiene rubber, nitrile rubber, carboxylated nitrile rubber, polybutadiene rubber, chloroprene rubber, silicone rubber, acrylic rubber, styrene-butadiene-vinylpyridine rubber, isoprene rubber, butyl rubber, polysulfide rubber, acrylic-butadiene rubber, polyurethane rubber, and fluorine rubber.~~

Claims 2 - 5 (cancelled)

Claim 6 (previously presented) The fully vulcanized thermoplastic elastomer according to claim 1, wherein said rubber phase has a gel content of at least 60% by weight.

Claim 7 (previously presented) The fully vulcanized thermoplastic elastomer according to claim 1, wherein the plastic matrix of said fully vulcanized thermoplastic elastomer comprises at least

one polymer or copolymer thereof selected from the group consisting of polyamide, polypropylene, polyethylene, polyvinyl chloride, polyurethane, polyester, polycarbonate, polyoxymethylene, polystyrene, polyphenylene oxide, polyphenylene sulfide, polyimide and polysulfone.

Claim 8 (cancelled)

Claim 9 (currently amended) A process for preparing a fully vulcanized thermoplastic elastomer, which comprises the steps of (i) providing a fully vulcanized powdery rubber as a first starting material, and (ii) blending the fully vulcanized powdery rubber with plastic as a second starting material, wherein the fully vulcanized powdery rubber is prepared by vulcanizing a corresponding rubber latex with irradiation, wherein the weight ratio of the fully vulcanized powdery rubber to the plastic is 30:70 to 75:25, ~~wherein said fully vulcanized powdery rubber comprises at least one rubber selected from the group consisting of fully vulcanized powdery natural rubber, fully vulcanized powdery styrene-butadiene rubber, fully vulcanized powdery carboxylated styrene-butadiene rubber, fully vulcanized powdery nitrile rubber, fully vulcanized powdery carboxylated nitrile rubber, fully vulcanized powdery polybutadiene rubber, fully vulcanized powdery chloroprene rubber, fully vulcanized powdery silicone rubber, fully vulcanized powdery acrylic rubber, fully vulcanized powdery styrene-butadiene-vinylpyridine rubber, fully vulcanized powdery isoprene rubber, fully vulcanized powdery butyl rubber, fully vulcanized powdery polysulfide rubber, fully vulcanized powdery acrylic-butadiene rubber, fully vulcanized powdery polyurethane rubber, and fully vulcanized powdery fluorine rubber, wherein~~

~~the average particle size of the fully vulcanized powdery rubber is $0.02\mu\sim 1\mu$.~~

Claim 10 (previously presented) The process according to claim 9, wherein the weight ratio of fully vulcanized powdery rubber to plastic is 50:50 to 75:25.

Claim 11 (cancelled)

Claim 12 (previously presented) The process according to claim 9, wherein the shape of the fully vulcanized powdery rubber is spheroidic.

Claim 13 (cancelled)

Claim 14 (previously presented) The process according to claim 9, wherein the average particle size of the fully vulcanized powdery rubber is $0.05\mu\sim 0.5\mu$.

Claim 15 (cancelled)

Claim 16 (previously presented) The process according to claim 9, wherein said plastic comprises at least one polymer or copolymer thereof selected from the group consisting of polyamide, polypropylene, polyethylene, polyvinyl chloride, polyurethane, polyester, polycarbonate, polyoxymethylene, polystyrene, polyphenylene oxide, polyphenylene sulfide, polyimide and polysulfone.

Claim 17 (cancelled)

Claim 18 (previously presented) A method comprising preparing a moulded article with the vulcanized thermoplastic elastomer of claim 1.

Claim 19 (previously presented) The fully vulcanized thermoplastic elastomer according to claim 1, wherein the average particle size of said rubber phase is $0.05\mu\text{-}0.2\mu$.

Claim 20 (previously presented) The fully vulcanized thermoplastic elastomer according to claim 1, wherein the weight ratio of the rubber phase to the plastic matrix is 50:50 to 75:25.

Claim 21 (previously presented) The fully vulcanized thermoplastic elastomer according to claim 6, wherein the rubber phase has a gel content of at least 75% by weight.

Claim 22 (previously presented) The process according to claim 14, wherein the average particle size of the fully vulcanized powdery rubber is $0.05\mu\text{-}0.2\mu$.

Claim 23 (currently amended) The fully vulcanized thermoplastic elastomer according to claim 1, wherein said fully vulcanized thermoplastic elastomer is prepared by a process comprising the steps of: (i) providing a fully vulcanized powdery rubber, which is prepared by vulcanizing a corresponding rubber latex with irradiation and (ii) blending the fully vulcanized powdery rubber with a plastic, wherein a weight ratio of the fully vulcanized powdery rubber to the plastic is

30:70 to 75:25.

Claim 24 (previously presented) The process according to claim 9, wherein the first starting material consists essentially of the fully vulcanized powdery rubber and the second starting material consists essentially of the plastic.

Claim 25 (new) The fully vulcanized thermoplastic elastomer according to claim 1, wherein the average particle size of said rubber phase is $0.05\mu\sim 0.5\mu$.

Claim 26 (new) The fully vulcanized thermoplastic elastomer according to claim 1, wherein the rubber phase of said fully vulcanized thermoplastic elastomer comprises at least one rubber selected from the group consisting of natural rubber, styrene-butadiene rubber, carboxylated styrene-butadiene rubber, nitrile rubber, carboxylated nitrile rubber, polybutadiene rubber, chloroprene rubber, silicone rubber, acrylic rubber, styrene-butadiene-vinylpyridine rubber, isoprene rubber, butyl rubber, ethylene-propylene rubber, polysulfide rubber, acrylic-butadiene rubber, polyurethane rubber, and fluorine rubber.

Claim 27 (new) The process according to claim 9, wherein the average particle size of the fully vulcanized powdery rubber is $0.02\mu\sim 1\mu$.

Claim 28 (new) The process according to claim 12, wherein the average particle size of the fully vulcanized powdery rubber is $0.02\mu\sim 1\mu$.

Claim 29 (new) The process according to claim 9, wherein said fully vulcanized powdery rubber comprises at least one rubber selected from the group consisting of fully vulcanized powdery natural rubber, fully vulcanized powdery styrene-butadiene rubber, fully vulcanized powdery carboxylated styrene-butadiene rubber, fully vulcanized powdery nitrile rubber, fully vulcanized powdery carboxylated nitrile rubber, fully vulcanized powdery polybutadiene rubber, fully vulcanized powdery chloroprene rubber, fully vulcanized powdery silicone rubber, fully vulcanized powdery acrylic rubber, fully vulcanized powdery styrene-butadiene-vinylpyridine rubber, fully vulcanized powdery isoprene rubber, fully vulcanized powdery butyl rubber, fully vulcanized powdery ethylene-propylene rubber, fully vulcanized powdery polysulfide rubber, fully vulcanized powdery acrylic-butadiene rubber, fully vulcanized powdery polyurethane rubber, and fully vulcanized powdery fluorine rubber.